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1: J Am Soc Nephrol 2002 Feb;13(2):359-69

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Anti-CD8 Monoclonal Antibody Therapy Is Effective in the Prevention and Treatment of Experimental Autoimmune Glomerulonephritis.

Reynolds J, Norgan VA, Bhambra U, Smith J, Cook HT, Pusey CD.

Renal Section, Division of Medicine, and Department of Histopathology, Faculty of Medicine, Imperial College of Science, Technology and Medicine, Hammersmith Hospital, London, United Kingdom.

ABSTRACT. Experimental autoimmune glomerulonephritis (EAG), which is an animal model of Goodpasture's disease, can be induced in Wistar Kyoto rats by a single injection of rat glomerular basement membrane (GBM) in adjuvant. EAG is characterized by circulating and deposited anti-GBM antibodies, focal necrotizing glomerulonephritis with crescent formation, and glomerular infiltration by T cells and macrophages. Our hypothesis was that T cell-mediated immunity, in addition to humoral immunity, was necessary for the development of crescentic nephritis in this model. To investigate the role of CD8(+) T cells in the pathogenesis of EAG, the in vivo effects of an anti-CD8 monoclonal antibody (OX8) were examined, with administration starting at the time of immunization (prevention) or 2 wk after immunization, when glomerular abnormalities were first detected (treatment). When administered intraperitoneally at 5 mg/kg, three times per week, from week 0 to week 4 (prevention), OX8 completely inhibited the development of albuminuria, deposits of fibrin in the glomeruli, glomerular and interstitial abnormalities, the influx of CD8(+) T cells and macrophages, and glomerular expression of granzyme B and inducible nitric oxide synthase. Circulating anti-GBM antibody levels were not reduced, but there was a reduction in the intensity of antibody deposition on the GBM. When administered at the same dose from week 2 to week 4 (treatment), OX8 greatly reduced the severity of EAG; in particular, the formation of crescents was prevented. These studies demonstrate that anti-CD8 monoclonal antibody therapy is effective in both the prevention and treatment of EAG. They confirm the importance of T cell-mediated immunity in the pathogenesis of this model of Goodpasture's disease.

Similar therapeutic approaches may be worth investigating in human crescentic glomerulonephritis.

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